REMARKS

This is in response to the Office Action of August 26, 2004.

This response is accompanied by a Request to Correct Inventorship under 37 C.F.R. § 1.48(a) and an Information Disclosure Statement.

In this amendment, the chain of related applications is added to the specification.

Claims are amended to correct obvious grammatical errors and to more precisely describe the instant invention. In addition, claim 18 is added to more precisely describe the instant invention wherein the container is free of a liner for receiving the cohesive powder, as described in the instant specification at page 5 line 31 which states that a liner is not required.

Turning to the Office Action, reconsideration and withdrawal of the rejection is requested in light of the amendments and remarks submitted herewith.

Objection to the Drawing

In the Office Action the examiner objected to the drawings. Replacement Figures 1A, 1B, 2A, 2B and 2C (sheets 1 and 2) are submitted herewith showing the tilting means (in phantom form), the service port 22 for supplying gas to the membrane and the gas source 20. Support for the tilting means shown in Figure 1A will be found on page 13, lines 14-19 which specifically describes a variety of tilting means including a crane to hoist the front end of the container above the rear end. Support for the service port 22 of the conditioning membrane will be found in the specification on page 12, lines 4-7. Support for the gas source 20 will be found in the specification at page 10, lines 6-12. The specification is amended to include the reference numerals added by these Replacement Figures.

Claim Rejections – 35 USC §112, first and second paragraphs

In the Office Action the examiner rejected claims 14, 1 and 28 under 35 USC §112, first and second paragraphs.

Claim 14 was rejected under the first paragraph of § 112 for reciting reference numerals used in the drawings. The recited reference numerals were for the support members of the manifold which are shown in Figs 1 and 2A-2C. Claim 14 has been amended to read more clearly and to delete the reference numerals.

Claims 1 and 28 were rejected under the second paragraph of Section 112 for indefiniteness.

Turning to claim 1, the last line of claim 1 has been amended to read more clearly by describing the function of the conditioning membrane and its ability to condition the bulk cohesive powder in the manifold. The antecedent basis problem with claim 1 reciting "the bulk powder" in line 21 is corrected by amendment to the preamble of claim 1.

The applicant respectfully requests clarification of the rejection of claim 28 on the grounds that there is no claim 28 in the instant application.

Claim Rejections –35 USC §103

In summary, claims 1-6, 8-9 and 13 have been rejected as obvious over Clarke et al. in view of Podd et al; claim 7 has been rejected as obvious over the primary and secondary references further in view of a statement in the specification taken by the examiner as "admitted prior art" and claims 10-12 have been rejected over the primary and secondary references further in view of Boldman.

Claim 1 of the instant application reads as follows:

> 1. A bulk unloading system for unloading a bulk cohesive powder comprising:
>
> (a) a bulk container removably mounted on a platform, the container having surrounding walls and a floor mounted on a structural frame and two ends, a front end and a rear end, wherein the front end is closed and the rear end is at least partially open; and the platform having a means of tilting the container at an angle from about 0 to at least 40 degrees; and
>
> (b) a manifold having inlet and discharge sections, the manifold being mounted by a support member connecting to a location selected from the group consisting of the rear end of the container and the platform to connect the inlet of the manifold to the rear end of the container, wherein at least a portion of the manifold is lined with a pneumatic conditioning membrane and wherein on the manifold is a service port by which gas service is supplied to the pneumatic conditioning membrane in order to enhance the flow of the bulk cohesive powder in the manifold. [Emphasis added.]

The applicants have invented a bulk unloading method that is particularly useful with cohesive powders such as titanium dioxide pigment. Applicants'

invention provides easy, rapid unloading of these very sticky powders while minimizing dust production. To make their invention cost efficient, applicants desired a bulk unloading method that used no liner or only a standard liner in the container, thus applicants designed a system that employs the less expensive, commonly available standard liner in place of a special liner such as that of Podd, et al.

Rejection over Clarke et al. in view of Podd et al.

The Clarke et al. reference (US 3,819,070) relates to a material handling system wherein a container for holding a bulk powder includes a discharge means such as a discharge hopper which can be funnel-shaped. Clarke et al. further teaches a conventional flexible liner for holding the bulk material within the container. Clarke et al., as pointed out by the examiner, fails to disclose a manifold wherein at least a portion of the manifold is lined with a pneumatic conditioning membrane in order to enhance the flow of the bulk powder in the manifold.

For more difficult-to-handle material, Clarke et al. describes a rather massive assembly that consists of a gyratory live bottom mounted in place of a gravity hopper at the IMC outlet. Live bottom dischargers of this sort generate significant mechanical forces, and the entire assembly would have to be very substantial. As pictured, the hopper of Clarke et al. (with the gyratory outlet) is nearly the full size of the rear of the container. Clarke et al. does not explain how the liner is cut away with this arrangement. Given the size of the hopper, It would be impossible to reach up through the outlet to access the liner. If the liner was cut before the hopper and bulkhead is brought into position, there would be a substantial spillage of pigment - perhaps a ton or more, with consequent losses and dusting. Clarke et al. does not provide any examples of actual unloading in his patent. Certainly, too, the gyratory motion would create dust and would offer no assurance that the flow of a cohesive powder would be either rapid or as complete as that observed and reported in applicants' Example.

The Podd et al. reference (US5,547,331) relates to the use of an air permeable pad installed in a cargo container to help load and unload cargo from the container. Podd et al. fails to describe or suggest the claimed manifold or a discharge hopper of the kind described in Clarke et al. Podd et al. requires the very kind of container aeration liner that causes the dusting and heel problems mentioned on page 2, lines

14-19 that the instant invention minimizes. Thus, reference to unloading in Podd found in the abstract and at lines 57 to 58 of column 2, in which air is conducted into the cargo via the liner to aerate and agitate the cargo teaches away from the instant invention.

Clarke et al. fails to teach or suggest the claimed manifold wherein at least a portion of the manifold is lined with a pneumatic conditioning membrane and Podd et al. requires an aerated container liner for loading and unloading and fails to teach or suggest the claimed manifold or the discharge hopper of Clarke et al. In view of the deficiencies of Clarke et al. and Podd et al. it would not have been prima facie obvious to a person of ordinary skill in the art to combine the teaching of Clarke et al. with that of Podd et al. to arrive at the claimed bulk unloading system. Although no single reference discloses the claimed manifold, wherein at least a portion of the manifold is lined with a pneumatic conditioning membrane, the Examiner is of the view that it would have been obvious to try to modify the hopper of Clarke et al. by placing the liner taught in Podd et al. in the discharge hopper of Clarke et al. in order to aid the flow of material through the manifold as the container is being unloaded. However, "obvious to try" is not a valid test of patentability. Obviousness must be predicated on something more than that it would have been obvious to try a particular modification to a reference.

On page 13, line 20 and continuing to page 15, line 24 of the present specification, applicants define what is meant by a cohesive powder. A property of powders discussed is aeratability of the various classes of powders. The term cohesive powders as used in the application applies only to Geldart class "c", which by definition are not aerable. Thus, there is no incentive for one skilled in the art to combine Clarke et al. and Podd et al. to solve the problem that applicants desired to solve. That is, to quickly unload bulk cohesive powders while minimizing dust and heel. (Please see page 14, lines 5 to line 16).

In addition, applicants have described conditioned flow as a unique result of the type of membrane selected for use in the present invention. Please see page 10, lines 13 to 20 of the present specification which directly states that applicants membrane with gas flow will not result in fluidization of the powder. Please also see page 9, lines 10 to 24 for a description of the membrane of the present invention.

References are not properly combinable if their intended function is destroyed in making the combination. Here, Podd et al. employs an air permeable pad in a cargo container to help load and unload cargo from the container. Referring to column 2, lines 24-34, it is noted that the air permeable container liner is an essential feature of Podd et al. because for loading it reduces the volume of space occupied by a given mass of the bulk cargo then for unloading it aerates and agitates the cargo. One of ordinary skill in the art would not find a reason to make the proposed modification by changing the structure described in Clarke et al. to add an air permeable pad then further modifying the already modified structure by placing the air permeable pad in the manifold of Clarke et al. then somehow achieve conditioned flow of a bulk powder. Those changes are not suggested by Clarke et al. or Podd et al. and moreover they would defeat the purpose and function of Podd et al. which was to have an air permeable pad in the container for providing significant air flow necessary to draw air from the cargo for loading and then aerate and agitate the cargo for unloading.

Further in the Office Action, the view is taken that claim 7 would have been obvious over Clarke et al. in view of Podd et al. in light of "admitted prior art". The Office Action concludes that on page 9, lines 14-20 applicant admits as prior art "using a microporous membrane in a pneumatic conditioning membrane". Reconsideration of this finding of admitted prior art is requested.

At page 9, lines 14-20, the instant specification states:

> ...The preferred material to use for the conditioning membrane of the present invention is a microporous membrane material such as that manufactured under the trademarks DYNAPORE and TRANSFLOW, microporous membrane. A microporous membrane material contains a multitude of small holes, less than 0.030 mm in diameter, spaced closely together.

In this passage, there is merely a list of the kinds of commercially available microporous membrane materials that were considered to be useful for the conditioning membrane of the manifold. Clarification of the basis upon which the examiner concludes that using microporous membranes for pneumatic conditioning membranes is "admitted prior art" is requested. Applicants' own disclosure of the

invention in the specification of the application cannot be taken as prior art. Use of a microporous membrane as a conditioning membrane for lining at least a portion of a manifold in order to enhance the flow of the bulk powder in the manifold has not been shown to be taught or suggested in the cited references. The pathway by which the gas passes through such a membrane, being tortuous thereby resulting in a measurable resistance to the flow of gas, would not have met the objectives of Podd et al. for reducing the volume of space occupied by bulk cargo by drawing air from that cargo during loading and aerating and agitating the cargo during unloading. Please see the specification at page 9, lines 20-24 regarding the gas flow of the membrane. Therefore, it would not have been obvious to make the proposed modifications to Clarke et al. relying on Podd et al. and the applicants' own disclosure of suitable microporous membrane materials appropriate for the invention.

The TRANSFLOW microporous membrane has been used in the hoppers of vessels to fluidize materials in the upper portion of the vessels, see, for example, Dewitz et al. US 4,941,779. However, the claimed invention would not have been obvious from that use in vessels to a person of ordinary skill in the bulk unloading art. Use of a microporous membrane in the hopper of a container that can be tipped to unload bulk cohesive powder would not have been obvious. Furthermore, use in a hopper in a vessel is a completely different context from use in a manifold in a container that can be tipped.

Claims 10-12 are rejected as obvious over Clarke et al. and Podd et al. as applied to claim 1 and further in view of Boldman (US2,229,037). Clarke et al. is relied on for teaching the use of vibrators in the manifold to aid the flow of bulk material. Boldman is then relied on for teaching the use of vibrators in the container. In view of the deficiencies of Clarke et al. and Podd et al., it would not have been obvious to further modify the combined teachings of Clarke et al. and Podd et al. with the teaching of Boldman to arrive at the invention of claims 10-12.

However, to expedite prosecution of claims 10-12, applicant will specifically address the deficiencies of the Boldman reference. In Boldman, the vibrators are positioned on the outside walls and hopper of the rail cars. In contrast, the vibrators in applicants invention are attached specifically to the heavy floor channels and cross members that support the container floor. This type of attachment ensures that

the vibrational energy is concentrated on the floor of the container and energy losses resulting in the vibration of the container walls are minimized. In addition in specific locations, the vibrators can be activated in specific patterns. It is the combination of these locations and vibration patterns that result in rapid discharge and minimum heel. Boldman teaches away from applicants invention since Boldman teaches a way to concentrate the vibrational energy in the walls of the hopper which will result in uneven flow and dusting. In applicants' invention, the pneumatic membrane conditions the bulk powder flow to a uniform, low dusting flow.

In view of the foregoing amendment and remarks reconsideration and withdrawal of the rejections is respectfully requested. The examiner is invited to telephone the undersigned to discuss resolution of any issues remaining in the application or raised by this response which discussion may expedite prosecution.

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,

JESSICA M. SINNOTT
ATTORNEY FOR APPLICANTS
Registration No.: 34,015
Telephone: (302) 992-4895
Facsimile: (302) 892-7949

Dated: 10 Jan '05